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The Air Expeditionary Force (AEF) is the centerpiece of the Air Force?s strategic vi-sion for the 21st century, called Global Engagement. While this vision calls for an im-proved expeditionary capability, the Air Force has found combat support at deployed lo-cations difficult to execute. This paper examines the best means of improving the AEF?s responsiveness by addressing the question: Whether the basing of expeditionary forces should be a sequential or parallel process? The problems of basing expeditionary air forces during a crisis illustrate how our doctrine relies upon a fundamental assumption that the Air Force?s experience largely contradicts. Current doctrine holds that the service should maintain a mobile combat support capability, organized along functional lines, to rapidly respond worldwide. Moreover, these support units should precede aircraft to a base and prepare for follow-on forces by establishing living and working facilities to sustain operations. Although sending support units before operational ones may be the best way to employ, doctrine needs to prepare support forces for deployment to locations where people and planes are already in place. For the Air Expeditionary Force to respond rapidly, the fundamental assumption about the process of projecting air power should be that it occurs concurrently, not sequentially. The implications of changing this assump-tion are that the service should develop cross-functional units, that all personnel have more training in beddown skills, and a portion of Air Force fighters have a vertical take-off and landing capability.

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BUILDING THE EAGLE'S NEST:

CHALLENGES IN BASING THE AIR EXPEDITIONARY FORCE

BY

MAJOR PATRICK J. SMITH

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Major Patrick J. Smith was commissioned through the United States Air Force Academy in 1984. Upon graduation, he was assigned to Tinker Air Force Base (AFB), Oklahoma as a civil engineer. In 1987 he transferred to Headquarters Air Force Logistics Command (AFLC) at Wright-Patterson AFB, Ohio, and served as a Foreign Military Sales construction program manager for the Middle East. While at AFLC, Major Smith also served as the Chief of the Readiness Division, supervising the command's civil engineering war planning. Following this tour, he attended the Air Force Institute of Technology Graduate Engineering Management program. Upon graduation, he served as a construction project manager at Tabuk, Saudi Arabia, supervising the completion of facilities for a Royal Saudi Air Force command and control system. Subsequently, he became a deputy division chief and Homestead AFB Reconstruction Program Manager at the Air Force Center for Environmental Excellence, Brooks AFB, Texas. Next Major Smith attended Air Command and Staff College, graduating in 1996. He currently attends the Air Force's School of Advanced Airpower Studies (SAAS). He holds a Bachelor's degree in Civil Engineering and a Master's of Science in Engineering Management. Major Smith is a professional engineer in the State of Ohio. His outstanding achievements include being the 1992 AFLC Foreign Military Sales Program Manager of the Year, and the 1994 Air Force Outstanding Staff Civil Engineer. In July 1997, Major Smith will be assigned to Headquarters Air Force, Deputy Chief of Staff for Installations

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Abstract

The Air Expeditionary Force (AEF) is the centerpiece of the Air Force's strategic vision for the 21st century, called Global Engagement. While this vision calls for an improved expeditionary capability, the Air Force has found combat support at deployed locations difficult to execute. This paper examines the best means of improving the AEF's responsiveness by addressing the question: *Whether the basing of expeditionary forces should be a sequential or parallel process?* The problems of basing expeditionary air forces during a crisis illustrate how our doctrine relies upon a fundamental assumption that the Air Force's experience largely contradicts. Current doctrine holds that the service should maintain a mobile combat support capability, organized along functional lines, to rapidly respond worldwide. Moreover, these support units should *precede* aircraft to a base and prepare for follow-on forces by establishing living and working facilities to sustain operations. Although sending support units before operational ones may be the best way to employ, doctrine needs to prepare support forces for deployment to locations where people and planes are already in place. For the Air Expeditionary Force to respond rapidly, the fundamental assumption about the process of projecting air power should be that it occurs *concurrently*, not *sequentially*. The implications of changing this assumption are that the service should develop cross-functional units, that all personnel have more training in beddown skills, and a portion of Air Force fighters have a vertical take-off and landing capability.

Contents

Page

Illustrations

Page

Chapter 1

Introduction

"Air bases are a determining factor in the success of air operations. The two-legged stool of men and planes would topple over without this equally important third leg."
------- General Henry H. "Hap" Arnold

The Air Expeditionary Force (AEF) is becoming a centerpiece of the United States Air Force's 21st century strategic vision of Global Engagement. General Ronald R. Fogleman, Air Force Chief of Staff, has said, "The air expeditionary force will be the key force for providing air and space capabilities to regional commanders in chief."[1] The world situation demands the United States have an air expeditionary capability.[2] This operational concept reflects the *National Security Strategy* and *Joint Vision 2010* focus on a contingency force based in the continental United States.[3] Briefly stated, the AEF is an idea for rapidly deploying a tailor-made air unit in response to a crisis or other short-term requirement of an overseas command. Present USAF planning anticipates tailoring AEFs to conduct deterrence, combat, or humanitarian operations. While the AEF builds upon the service's core competencies, it has generally found expeditionary operations difficult.[4] This paper evaluates the adequacy of the Air Force's doctrines for supporting AEF deployments by focusing upon one aspect of the USAF's agile combat support core competency—basing.[5] Combat support is a core competency due to its central role in enabling air forces to respond rapidly across vast distances. Basing is a fundamental element of combat support because it is inextricably tied to logistics and force protection. An air base is an area prepared for the accommodation of aircraft landing and takeoff, including any structures and equipment, from which operations are projected or supported.[6] If logistics is the "lifeblood" of air power, then air bases are the "skeletal frame and internal organs" through which that blood flows.[7] The need for air bases to effectively employ

land-based air power has been a constant since the beginning of military air operations. Therefore, if there have been recurring troubles in conducting expeditionary operations, then perhaps deficiencies in basing doctrine are a cause of those problems.

The Air Force faces two sets of challenges in basing expeditionary forces, one physical and the other doctrinal. The physical challenges are availability and operability. Availability speaks to the access necessary to effectively employ air power using a network of airfields which serve as staging and operating bases. Nations will grant access to US forces when it is in their perceived best interest to do so; however, many countries are becoming less accommodating due to the political baggage that comes with being an American ally.[8] While the USAF has relied upon an extensive network of overseas bases during the last fifty years, new political and fiscal constraints have produced a largely US-based force.[9] The other physical challenge is operability. Operability refers to an airfield's ability to function harmoniously with assigned aircraft. Modern aircraft require a tremendous infrastructure to support advanced systems and subsystems. Advanced technology has almost been decisive in the air, but tends to increase air power's footprint on the ground. Therefore, while deployments to robust airfields are preferable, humanitarian missions at least will continue to require deployments to austere locations.[10] These two physical challenges result in a doctrinal challenge for the operational strategist.

The doctrinal challenge hinges upon time. In a contingency, the prevailing consideration affecting basing decisions is the time available to deploy forces and materiel. Deployment to a robust base significantly improves responsiveness, while an austere base will hinder it due to improvements necessary for operability. In addition, prepositioning equipment reduces airlift requirements during a crisis, but is expensive and may be in the wrong location. Furthermore, military forces tend to focus on effectiveness versus efficiency. The use of organic engineering forces enhances effectiveness, while the contract labor tends to be more efficient. The tension involves how to best marshal personnel and equipment in response to the situation. Specifically, how should the Air Force establish basing to best support a given set of national objectives? Should support forces deploy in advance and build up basing capability, or combat forces deploy in advance to deter an

adversary? These tensions in basing give cause for a fresh analysis of Air Force basing and combat support doctrine.

This examination focuses upon the question: *Whether the basing of expeditionary forces should be a sequential or parallel process?* In other words, do basing problems stem from doctrinal inadequacies regarding the availability of time? It does not focus on basing's physical challenges due to the complexity of issues regarding international relations and national interests; but these challenges will be a recurring theme throughout. Therefore, the paper's fundamental purpose is to conduct an initial historical study aimed at identifying the key theoretical and doctrinal propositions required of an adequate body of doctrine to guide AEF development. Four subordinate questions provide a framework for pursuing this inquiry. First, what is an AEF, and how does it compare to previous Air Force rapid deployment concepts, like the Composite Air Strike Force? Second, what is the theory of basing expeditionary air power?[11] Third, what has been the Air Force's experience in basing expeditionary forces? In answering this question, this study examines the Lebanon Crisis of 1958 (a lesser regional conflict) and DESERT SHIELD (a major regional conflict) to compare the theory to practice. Fourth, how does current doctrine compare to this theory and experience—where do they agree and disagree, and why? Answering these questions highlights challenges in linking Air Force doctrine with its strategic vision.

This study has three limiting factors. First, it is unclassified to facilitate wider discussion of the AEF as an operational idea. Second, it is not a comprehensive historical survey of expeditionary airpower because of time and space limitations. Third, the study relies on personal interviews with some of the Air Force's senior leaders and unpublished briefings for some evidence. Therefore, while there is minimal open source information available, every attempt will be made to minimize any bias in the findings by verifying the evidence presented.

Notes

[1]. "Air Force modifies core competencies," *United States Air Force News Service*, October 23, 1996.

[2]. *Global Engagement: A Vision for the 21st Century Air Force* (Washington, D.C.: Department of the Air Force, 1996), 5.

Notes

[3]. United States Joint Chiefs of Staff, *National Military Strategy* (Washington, D.C.: Government Printing Office, 1995), 7; and United States Joint Chiefs of Staff, *Joint Vision 2010* (Washington, D.C.: Government Printing Office, 1996).

[4]. Authors such as Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 2, (Chicago: University of Chicago Press, 1948-58); Robert Frank Futrell, *The United States Air Force in Korea, 1950-1953* (Washington, D.C.: Office of Air Force History, 1983); and Eliot Cohen and Thomas Keaney, *Summary Report of Gulf War Air Power Survey* (Washington, D.C.: Government Printing Office, 1993) document land-based air power's difficulties in conducting expeditionary operations.

[5]. Doctrine being a set of officially sanctioned beliefs of how to best accomplish an objective under specific circumstances. Accordingly, doctrine should be what experience has shown works best, yet always subject to change with the arrival of new experience, technology, or situations.

[6]. This definition is a synthesis of definitions of an airfield and a base found in Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, D.C.: Government Printing Office, 23 March 1994).

[7]. Julian Thompson, *The Lifeblood of War, Logistics in Armed Conflict* (London: Brassey's Ltd., 1991), 3-5.

[8]. Lieutenant General John P. Jumper, US Air Force Deputy Chief of Staff for Plans and Operations, interview by author, Maxwell AFB, Al., 19 November 1996.

[9]. James R. Blaker, *United States Overseas Basing: An Anatomy of the Dilemma* (New York: Praegar, 1990), 134-141.

[10]. Jumper.

[11]. Theory being what one think happens or will happen to best accomplish an objective under given circumstances—but is *not* officially sanctioned.

Chapter 2

A Look At The Air Expeditionary Force

"Speak softly, but carry a big stick."
------- President Theodore Roosevelt

This chapter answers the question: *What is the Air Expeditionary Force, and how does it compare to previous efforts?* It does so by comparing the AEF to a similar idea developed in the 1950's—the Composite Air Strike Force (CASF). This comparison examines respective origins and concepts of operation of these two ideas; highlighting their similarities and differences.[12] The purpose of this comparison is threefold: to explain for the reader what is an AEF, to clarify some misconceptions about comparisons between the AEF and CASF, and to show the evolution of service basing doctrine.[13]

Origins

The Air Expeditionary Force (AEF) and the Composite Air Strike Force (CASF) had similar origins. General O. P. "Opie" Weyland, Commander of Tactical Air Command (TAC), created the CASF concept in 1955 to provide a small air task force able to deploy anywhere worldwide within 48 hours, and be able to employ conventional or nuclear weapons.[14] At a time when the Soviet Union's power was expanding its reach throughout the world through proxy wars, Air Force leaders felt a small, lethal force capable of quickly crossing the globe could deter aggression. Similarly, the Air Force's experience with Operation VIGILANT WARRIOR in 1994 caused its leaders to activate a new rapid deployment force.[15] The mobilization and deployment of over 400 aircraft to the Gulf area required several days due to the lack of strategic warning. Still, Lieutenant General John P. Jumper, as the Joint Force Air Component Commander for US Central Command

(CENTCOM), noted that the Iraqis ceased their threatening actions once the first aircraft arrived.[16] This experience inspired the Air Force's activation of the Air Expeditionary Force concept.[17] As did the CASF concept, the AEF idea called for a rapidly deployable force to provide regional air commanders a "rapid, responsive and reliable air power capability" tailored to meet unique theater requirements.[18] If deployment failed to deter, an AEF would have the striking power necessary to counter hostile action, and buy time for reinforcements to arrive. The compromise between responsiveness and capability determines the force size and composition—and herein lays the challenges in basing it.

Composite Air Strike Force Concept of Operations

TAC established the CASF as a flexible unit of several parts. At the heart of the Composite Air Strike Force (CASF) were supersonic fighter-bombers carrying nuclear or conventional weapons. Their increased speed, range and munitions payload over World War II vintage aircraft, combined with improved air refueling and transport aircraft, made worldwide mobility possible. TAC built the CASF around a core of F-100 fighter-bombers and B-66 tactical bombers, supported by TAC-dedicated KB-50 tankers and C-130 transports. The command also included various reconnaissance aircraft, such as the RF-84F and RB-57.[19] Furthermore, the command created specific units for tactical control, radar, and communications to improve the force's overall combat effectiveness.[20]

With these units, TAC produced a scaled-down composite air force capable of rapidly deployment and employment overseas. Once committed to action, the CASF could conduct counterair, interdiction, and close air support missions in proportion to the allocated effort, as dictated by the situation and operational strategy.[21] Aerial reconnaissance played a vital role in providing joint force and component commanders the information and intelligence necessary to plan and conduct operations. While individually these elements were not new, their combination and compressed deployment schedule were. General Weyland realized this force would require "careful planning, detailed coordination, and intensive training" to make its potential for rapid deployment reality. He assigned Brigadier General Henry P. Viccellio as Commander of Nineteenth Air Force to make it so.[22]

CASF deployment planning was rigorous to ensure the smooth and rapid movement of forces from the United States to world trouble spots. Before the CASFs creation, TAC identified potential world trouble spots, determined CASF composition and specific units, and selected supporting airfields.[23] Planners realized it was necessary to insure uninterrupted passage of units, free from political constraints (staging and overflight rights) and major weather disturbances. Therefore, detailed flight plans included refueling rendezvous points, divert airfields, and a common reference hour to coordinate all deploying units.[24] Nineteenth Air Force prepositioned materiel and movement control teams at strategic locations along the primary and alternate aerial lines of communication. This detailed planning improved responsiveness, but was only a first step toward effective employment.

While the CASF represented a tremendous combat force, it lacked a robust combat support and basing capability. Employment planning consisted primarily of intelligence preparation and dissemination to the unit level of anticipated trouble spots, regional political situations, weather, terrain, and targets. Planners included only enough combat support for deployed units to augment existing air base organizations in theater. To compensate for this austere support capability, supplies and equipment were pre-positioned, and special mobility flyaway kits created for deployment. The rationale was to keep any operation functioning for the first thirty days by which time replenishment would arrive from Air Materiel Command through the Military Air Transport Service.[25] One reason for the lack of emphasis on combat support was that when the Air Force became a separate service, it agreed not to duplicate support functions the Army performed. Therefore, the service relied upon Army units or civilians to provide engineering and construction services. Unfortunately, the absence of an organic engineering capability would eventually affect CASF operations, as seen in the Lebanon Crisis of 1958, explored later in this paper.

Air Expeditionary Force Concept of Operations

The Air Force designed the AEF with enough firepower to stabilize a crisis, increase existing air capabilities in a theater, or to maintain a constant level of theater force when a

US Navy aircraft carrier is not in the region. Normally, the deployed task force consists of 34 to 40 F-15 and F-16 aircraft with US-based bombers on dedicated alert. Aerial refueling tankers augment the basic package when insufficient resources exist in theater.[26]

The force consists of units who have deployed and trained together, and are prepared for short-notice deployment.[27] Typical types of missions include air superiority, strike, suppression of enemy air defenses (SEAD), and refueling.[28] The goal is to launch combat sorties within 48 hours of receiving the execute order from the National Command Authority.[29] In comparison to the "standard" CASF, AEFs are smaller by a third. Other significant differences are the CASF's inability to perform SEAD, and absence of tactical reconnaissance in the AEF. In essence, the AEF represents a large strike package, and additional capabilities (for example, reconnaissance and combat search and rescue) must exist in theater or also deploy. Typically deployments require up to 1,000 aircrew, maintenance and support personnel.[30] This force includes every specialty necessary for combat operations from cooks to munitions load crews to communication specialists.[31] However, while the AEF is a power projection force, it is not "expeditionary" in the sense that it can go into a "bare base" rapidly.[32]

The AEF basing concept envisions going into prepared locations with established logistical support. The prepared locations are previously designated foreign airfields with pre-positioned "AEF hotels" stocked with essential equipment—including billeting tents, communications cabling, and precision munitions.[33] An AEF hotel is a K-Span structure with basic utilities designed to store equipment on a long-term basis (one to two years).[34] Base preparation for an AEF requires several weeks of planning and effort, resulting in a complete site layout plan, prepositioned equipment and supplies, and a document that ties everything together called the "playbook". The "playbook" is actually a series of plans for each deployment site that the lead wing prepares in advance to enable a smooth start-up during a crisis.[35] These plans list all pre-positioned materiel, and provide essential information regarding the prepared locations ranging from runway lengths to communication frequencies. Further, the "playbook" provides layout plans for aircraft parking, tent cities, communications, and work areas. Finally, it includes an extensive set of maps, photographs, and videotapes to provide continuity and orient new individuals. This level

of detailed, but flexible planning, is what allows the Air Force to deploy a lean, responsive composite-wing structure capable of conducting operations in a matter of hours. In a crisis, deploying forces unpack the "AEF hotels" upon arrival, and operate from them during the initial period of activity when high sortie-generation rates are critical.[36] After achieving initial objectives, the force completes beddown while continuing operations.

While the AEF presents a significant capability to regional commanders, it has some key constraints that limit its ability to respond. First, host nations must invite the United States—making base availability an imperative.[37] Second, an operational base must exist; an AEF cannot operate in the stated period of 72 hours from unprepared airfields.[38] Thus, basing's physical challenges deserve careful consideration in any planning effort.

Summary

The Air Expeditionary Force represents the Air Force's effort to create an "air power package" to stabilize a crisis, increase existing theater capability, or maintain a constant level of force. AEFs provide a cost-effective capability by marrying the economies of US basing with practiced rapid response to produce the operational punch of theater-based units. While the AEF and CASF are similar regarding purpose, composition and limitations, they differ in terms of planning assumptions, combat support and basing. The purposes of these ideas are similar, although occurring in vastly different international political situations. The differences between these two ideas are most significant with regard to basing and combat support. Each concept faces the same physical challenges of availability and operability, and doctrinal challenges of responsiveness. The CASF attempted to deal with the physical challenges by relying heavily upon existing theater bases using Army support. In contrast, the AEF plans on deploying to host nation air bases using the service's organic engineering and bare base capabilities. Furthermore, AEFs expect to conduct operations while bedding down and completing deployment. These differences highlight a significant shift in how the Air Force thinks about combat support and basing. This change reflects a realization about the nature of expeditionary operations evidenced in the Air Force's experience. The next chapter investigates the role of basing in expedi-

tionary foperations, followed by a examination of two case studies comparing the theory to practice.

Notes

[12]. Richard E. Neustadt and Ernest R. May, *Thinking in Time: The Uses of History for Decision-Makers* (New York: Free Press, 1986), 235.

[13]. In many of the briefings the author attended, senior leaders and staff officers frequently compared the AEF to the CASF. While there are similarities between the two ideas, it is important to understand how they differ. Interestingly, these differences focus largely on basing concepts.

[14]. Gen O. P. Weyland, "How TAC Stops Limited War Before It Starts," *Armed Forces Management Review*, April 1959, #.

[15]. Lt Gen John P. Jumper, Air Force Deputy Chief of Staff for Plans and Operations, interview by author, Maxwell AFB, Ala., 19 November 1996,.

[16]. Brig Gen William R. Looney, III, "Air Expeditionary Force Operations," lecture, School of Advanced Airpower Studies, Maxwell AFB, Ala., 2 March 1997.

[17]. Jumper.

[18]. Ibid.

[19]. Brig Gen Henry P. Viccellio, "The Composite Air Strike Force," *Air University Quarterly Review*, 33!!!!.

[20]. Ibid, 29.

[21]. Ibid, 35.

[22]. Ibid, 30.

[23]. Ibid.

[24]. Ibid, 30-31.

[25]. Ibid, 31.

[26]. Brig Gen William R. Looney III, "The Air Expeditionary Force," *Air Power Journal* 10, no. 4 (Winter 1996): 4-9. A typical package consists of 12 air superiority, 12 strike, and six SEAD aircraft. The force can generate 40 to 60 missions on a daily basis. Planners anticipate surging to 70 sorties/day for up to three days. In comparison, an aircraft carrier generates 100 sorties a day, and can surge upwards of 200 in combat. Total personnel range from eight hundred to one thousand depending on the location and mission.

[27]. Jumper.

[28]. Looney, "The Air Expeditionary Force".

[29]. Jumper, and Looney, "The Air Expeditionary Force".

[30]. Col Brian E. Wages, "The First With The Most, USAF's Air Expeditionary Force Takes The Offensive On Power Projection," *Armed Forces Journal International*, September 1996, 66-71.

[31]. Ibid.

[32]. Looney, "The Air Expeditionary Force".

[33]. Jumper.

[34]. A K-Span is formed by using extruded aluminum to create a series of interlocking arches. These arches form an enclosed structure in a matter of 2-5 days, depending on size.

Notes

[35]. Jumper, Looney, and Wages.
[36]. Looney, “The Air Expeditionary Force”.
[37]. Ibid.
[38]. Ibid.

Chapter 3

A Theory For Basing Expeditionary Air Power

> *"Air forces and air bases are the strategical elements of air power. The purpose of air strategy in peace is the establishment of air power in the spheres of military influence recognized by national policy and its outward extension from frontiers for the preservation of national security."*
>
> -------- *The Air Corps Tactical School (ACTS)*
> *General Air Force Principles lecture*

The ACTS theorists clearly understood the importance of basing to projecting air power. Given the role of basing as a "strategical element" of air power, this inquiry's third question asks: *What is the theory for basing expeditionary air power?* Addressing this question is important because projecting air power is the prime purpose of the Air Expeditionary Force (AEF). Any examination of AEF basing doctrine first requires an understanding of basing theory. This chapter starts with a look at the context of expeditionary operations—international crises. The chapter then explains the primary principles of basing, and how the AEF concept of operations addresses those principles. Finally, it closes with some considerations service doctrine should address.

Context

Understanding the context of a theory is important because while a good theory is always valid, it may not be always relevant. Although the AEF may serve as a "gap filler" for Navy carrier battlegroups or as an air task force for a specific operation, its ultimate purpose is to help resolve a crisis as an instrument of military power. For this discussion, a crisis is defined as a situation involving a threat to the United States, its territories, citizens, military forces, possessions, or vital interests consisting of a rapidly developing sequence of interactions between parties that have an increased probability of armed con-

flict.[39] This definition identifies two key factors influencing expeditionary operations—time and uncertainty. Crises tend to develop rapidly, compressing the time available for understanding the situation, assessing alternatives, deciding courses of action, planning and executing operations. Uncertainty drives the need for more information about the situation, while affecting all parties similarly. Air power can contribute to crisis resolution through its potential to observe, signal, support, deter, stabilize or conclude a crisis using its dominant characteristics of range, relative speed, and vantage point.[40]

Despite these strengths, land-based air power does have physical limitations. Most notably, overflight and basing restrictions can limit air power's effectiveness.[41] Suitable airfields simply may not exist, or they may consist of nothing more than a runway, ramp area and potable water source—a bare base.[42] Therefore, for air power to be responsive air bases must be available and adequate.

The compressed time frames of a crisis, coupled with air power's strengths and weaknesses, significantly shape the operational strategist's problem in two ways. First, provision of staging and operating locations is necessary, preferably before a crisis erupts. Therefore, planners must anticipate the challenges of strategic access and attempt to secure the necessary access rights. Second, operating bases must often be built or improved to support deploying forces. Both factors ultimately become a question of time. Do operational commanders have sufficient time to build up the supporting infrastructure during a crisis to achieve national objectives? An examination of basing theory will help answer this question.

Basing Expeditionary Air Power

The process for projecting any military force is a complex one, but can be summarized into a few, highly interdependent steps. First, projecting military force requires a set of achievable and politically realistic objectives. Second, strategists must organize forces to accomplish these objectives. Third, these forces must move into regions with basing and logistical support to sustain combat. Finally, campaign plans ought to pit one's strengths against enemy weaknesses based upon a clear assessment of the respective capabilities. While presented sequentially,

this process occurs largely in parallel during a crisis, due to the rapid succession of events—significantly increasing planning and decision making complexity.[43] Success, in large measure, depends on using the operational arts to achieve strategic objectives using tactical actions—of which basing is one key element.

Physical Challenges

Availability. Basing's two physical challenges of availability and operability significantly shape air power's employment. While distinct, both are highly interrelated. Availability being the access necessary to effectively employ air power using a network of airfields that serve the roles of staging and operating bases. National objectives and organization of forces generates the requirements for basing availability. The Air Corps Tactical School (ACTS) summarized this relationship stating,

> Air forces and air bases have the same relation to air power that fleets and naval bases have to naval power. The rapidity with which it is possible to strike directly at a nation's economic structure from the air makes the creation of an air force, after war is declared, impossible. The same is true of air bases. A study of a nation's requirements, in so far as air defense nation's requirements…will indicate the strategical areas in which air bases should be created in time of peace. Air bases endow an air force with mobility. Their location and character limit the efficiency with which air forces may be employed, and a proper appreciation of their importance permits conservation of equipment and security to become largely strategical, rather than tactical factors.[44]

Clausewitz recognized this truth, stating fortresses "…are vital by means of their strategic value as knots that hold the web of strategy together."[45] In the context of air power, bases are the "knots" of air strategy, "[air power's] real potential is realized only when integrated into a comprehensive and near-global routing network."[46] Therefore, the characteristics of air forces, pre-dominantly range, govern the location of bases, and the network of bases influences the type and size of air forces.[47] If a limited number of bases are available, then their relative importance in a campaign increases—making them valuable targets.[48] Hence, the dispersal of bases ought to be a key consideration to protect against surface or aerial attack.[49]

The complex process of selecting operating locations involves several factors. Clausewitz argued it requires careful thought; and that geography and 'strategic conditions'

should drive these decisions, not "…transient military fashions, flights of ingenious strategy, or special needs of a given case."[50] In choosing operating locations, planners should consider airfield size and configuration, local weather, terrain, access to land and sea transportation networks, the availability of utilities (mainly water), and urban proximity.[51] Weather is often the most important factor effecting flying followed by altitude.[52] Three factors normally determine air base size: aircraft characteristics, the location's altitude above sea level, and room for potential expansion.[53] Given these factors, base selection needs to address the countervaling operability issues.

Operability. Operability, again, refers to an air base's ability to function harmoniously with assigned aircraft. Lieutenant Colonel Price T. Bingham states an operational commander "…exercises operational art to achieve strategic goals through his design, organization, and conduct of campaigns and major operations."[54] Operational commanders exercise operational art in orchestrating air bases and air power to effectively support campaigns by establishing requirements and priorities.[55] In a crisis, these requirements are urgent, creating a tension between efficiency and effectiveness. An airfield's efficiency determines the number and types of aircraft it is capable of supporting, with the primary effectiveness considerations being mission compatibility, survivability, and defense.[56] Therefore, base development during a crisis involves prioritizing necessary tasks consistent with the mission, threat, resources, and host nation restrictions while balancing the needs of efficiency and effectiveness.[57]

Aircraft characteristics drive the prime operability requirements of runway suitability (length, width, strength, and smoothness), and parking capacity (maximum aircraft on ground).[58] Secondary operability requirements include maintenance facilities, fuel and munitions storage areas, utilities, and command and control systems.[59] The importance of runway suitability and parking capacity makes these elements the bottleneck in accelerating base development due to the vast amount of people, equipment, material, and time necessary.[60] Since runways require considerable time and effort to build, upgrade or repair, fewer suitable bases are likely to exist.

The key to improving operational flexibility is to reduce runway requirements, specifically landing distances. Landing distances are the central issue because advance tech-

nologies—specifically higher thrust engines—have significantly reduced takeoff rolls for fighter aircraft. However, technology has not improved landing requirements due to the "…differences between a fighter's acceleration during takeoff and its deceleration when landing explain why runway characteristics are more important for landing than take-offs."[61] Two options for eliminating this bottleneck are reducing runway requirements or increasing engineering capabilities. Significant reductions in runway requirements are attainable only by changes in technology, such as vertical takeoff and landing aircraft. Increased engineering capability contributes only marginally to operational flexibility.

Survivability and defense are two sides of the same 'coin'. Survivability involves critically looking at an air base's systems and subsystems to identify those features that will significant hamper operations if destroyed. Once identified, engineers and operators can develop technical or procedural solutions to reduce these risks. Technical solutions consist of hardening structures, duplicating facilities and systems, or deceiving the enemy; while procedural solutions mainly consist of dispersal. Defense, or force protection, is important because air forces operate from fixed air bases, resulting in aircraft being the most vulnerable on the ground.[62] ACTS thinkers appreciated this vulnerability, stating:

> Air forces can only be employed to their maximum effectiveness if proper air bases have been established in those strategical areas from which it is estimated those air forces will be employed. Modern air forces cannot operate from hastily prepared and impoverished landing fields. Air forces possess no ability to defend themselves from attack delivered against their bases by hostile ground forces excepting in so far as their ability to defeat landing operations on their shores.…Protection of air bases against destruction from the ground is not limited merely to direct action by hostile ground forces. Sabotage is undoubtedly a method of attack which must be guarded against.[63]

Therefore, bases must not only support intense and prolonged air operations against the enemy, they must also be capable of surviving and defending against aerial and ground attacks. Force protection consists of air defense, ground defense, passive defense (the link to survivability), and recuperation (also called BRAAT—base recovery after attack).[64] The focus of effort in each of these areas is highly dependent on numerous factors including threat, geographic location, and political context. Base planning, design

and construction play an important role in each of these areas; however, further discussion of air base defense is beyond this paper's scope.

Doctrinal Challenges

The operational commander faces at least three doctrinal choices in relation to basing: whether to use austere or robust bases, organic or contract labor, and pre-positioned or deployed equipment. None of these challenges is an bi-polar matter, but rather a matter of degree influenced by the situation, resources available (men, material and dollars), and, most importantly, time.

Austere or Robust Basing. The first doctrinal issue involves locating air forces at forward austere bases versus more robust ones in the rear. The operational commander faces the dilemma of balancing proximity to the adversary with time available to build new airfields or improve existing ones. General Carl "Tooey" Spaatz concisely explained the relationship between aircraft range, proximity, and basing: "Air strategy begins with airplane ranges. Airplane ranges determine the location of bases. The proximity to the target of the bases under one's control fixes the weight and rhythm of attack."[65] General Spaatz understood that an air force is less effective farther away from a target because the range to target diminishes the effort a force can sustain. If the distance is great, it takes longer to fly a sortie; thereby reducing the number of sorties that a given force can fly.[66] Distance also reduces the responsiveness of sorties flown from a particular air base, which can be critical in a heated battle. While air refueling may reduce some of these handicaps, it complicates base operability by requiring large areas of ramp space and longer runways compared to fighter aircraft. Therefore, more robust bases support more aircraft of different types at the cost of fewer being available. Furthermore, if only a small number of bases are available, then campaign options become more predictable. Fewer available bases results in a greater concentration of assets (for example, aircraft, support facilities, runways, taxiways, etc.) to generate a given number of sorties. If a campaign's success depends, to a degree, on the sorties generated, then these bases become more valuable targets for terrorism, ground or aerial attack—further complicating base operability.[67] Likewise, austere basing provides the commander greater flexibility at the cost of increased resources and time necessary for base development to support as-

signed aircraft. Runway requirements, as discussed before, are the bottleneck in base development. The key is to balance these tensions with regard to operational objectives and basing available within the anticipated time frame of operations. In a crisis, this time is minimal; hence, the need to use relatively robust bases.

Organic or Contract Construction. The second doctrinal issue speaks the dilemma of using organic vice contracted construction services to accomplish base development. The tension in this problem returns to how to best remove bottlenecks in operability, and hinges upon the importance of effectiveness versus efficiency. The effectiveness argument focuses on developing a close relationship between operational and support units to foster trust and improve fighting capability. Developing and maintaining a dedicated engineer force who is "joined at the hip" with operational units best achieves effectiveness. By working together during training exercises, trust and effectiveness mature; however, military labor is often less efficient than civilian labor due to the lack of skill development, and necessity for light, air transportable construction equipment. The efficiency side emphasizes the tremendous effort needed for base development and how to best accomplish that Herculean tasking. Using construction contractors who bring deliver more highly skilled labor and heavy-duty equipment capable over time for performing large-scale construction projects improves efficiency. The peculiarities of a wartime environment, filled with friction, uncertainty and danger, coupled with the time demands in a crisis situation tip the scales toward using organic forces for initial beddown and base development, followed by contract labor for longer term projects to increase operability.

Pre-positioning or Deploying Equipment. The third doctrinal issue involves a balance between the use of pre-positioned assets and deploying assets in theater as needed. ACTS explained the relationship between basing and logistics stating, "Air bases, in order to permit utilizing an air force to its maximum effectiveness, must be equipped with those essential supplies which are required for the sustained operations of the air force located thereat."[68] Materiel must be present at the onset of operations and sustained throughout. Military airlift is the prime

means of transport for expeditionary operations initially because it provides a flexible, responsive means of supporting combat operations over great distances.[69] However, this speed and agility mean airlift cannot support the volume of fuel and munitions necessary during intense fighting. Therefore, situation tempo and re-supply ability govern the amount of subsistence, fuel, munitions and spare parts kept on-hand. While many planners view pre-positioning as a panacea, it has some significant drawbacks due to the costs of buying and maintaining large stockpiles of additional equipment.[70] Furthermore, locating these stocks at large depots in a theater does not completely solve the problems of transporting the materiel to front-line troops. In a crisis, the core issue becomes prepositioning the bulk items to allow operations to commence with the anticipated time frame. The assumption on when sustainment can begin reflects a level of risk that weighed relative against competing airlift demands for the other armed services or contingencies.

Basing the Air Expeditionary Force

The inquiry now looks at the AEF's basing concept through the lens of theory. Diplomatic negotiations and agreements with allies in the world's troubled areas seek to secure AEF basing. Securing these agreements serves a twofold purpose: reducing basing uncertainty and testing ally commitment. Because a crisis is a time-compressed sequence of events filled with uncertainty, it is beneficial for leaders and planners to be able to count on the strategic access necessary to accomplish national and military objectives. The risks in this approach are not securing base availability for an unforeseen contingency, and the promise of access by allies is still no guarantee. What is a vital interest to the United States, may only be a peripheral one to an ally. So while the AEF basing concept attempts to mitigate the physical challenge of basing availability, it in no way eliminates the concern.

The AEF concept addresses the challenge of operability through the use of the "playbook". The playbook allows planners to rationally balance operability considerations, previously described, when time is available rather than during the "heat of battle". The

playbook's major limitation is it may hinder flexibility if forces other than those anticipated deploy to a given location; therefore, consideration of two or three options may be prudent in planning—just as any commander seeks two or three courses of action in planning operations.

The AEF basing concept attempts to balance the tension between bare and robust basing by using air transportable and pre-positioned assets to supplement existing facilities and systems at moderately robust air bases. While these bases are certainly closer to potential enemy targets, aircraft are located away from the front lines, minimizing the risk of attack. Aerial refueling can offset any shortfall in aircraft range at the cost of increased transit times and logistic demands.

The AEF concept of operations attempts to balance the efficiency versus effectiveness debate by relying upon Air Force organic engineering capabilities at the onset of a contingency. By doing so, a dedicated engineering force helps ensure responsiveness to basing requirements. The second part of the AEF basing equation involves using standing contracts with large-scale construction firms to provide longer term construction and operation services. This element provides the efficiency necessary for extended and costly deployments. The key is insuring operational plans include sufficient capability for the anticipated duration and types of operations.

The logistics concept for the AEF attempts to mitigate the problems in prepositioning in two ways. First, the "AEF hotel" stocks those essential items necessary to begin operations. At the same time, deploying units are reducing the spares brought from the United States to three days. This decision will reduce the amount of lift necessary to deploy tasked units. Secondly, AEFs will receive sustainment airlift from day one, instead of waiting two to three weeks under the previous logistics concept. The thought being depots can directly supply deployed forces using express air carriers and dedicated airlift, instead of hauling many tons of unnecessary cargo. This concept assumes that aerial lines of communication will remain secure and airlift, commercial or military, is available. While these

assumptions are most likely valid in a lesser regional conflict, they may not in a major theater war.

Summary

The Air Force created the AEF primarily as an instrument of military power for crisis situations. A crisis being a situation threatening national interests characterized by a time-compressed sequence of events. In these situations, the process for projecting air power consists of a few, highly interdependent elements: establishing national objectives, organizing forces, establishing basing and logistical support, planning and executing operations. The process's most important facet is that it occurs concurrently due to the rapid succession of events—significantly increasing complexity. Therefore, basing concepts must be flexible to accommodate different types of forces for a variety of potential missions. If part of operational strategy is the linking of means to ends, then part of air strategy is connecting basing and air forces to national objectives. Base planning should proceed at three levels—strategic, operational, and tactical. At the strategic level, deliberate planning should anticipate where crises may occur and secure strategic access accordingly. Operational planning should examine the adequacy of regional basing in peace by collecting information on a variety of topics, and assign air forces to locations appropriate for the systems involved. Tactically, planners should develop beddown plans for assigned forces based upon two or three likely scenarios. This type of planning fosters a quick transition to crisis action planning. Most importantly, doctrinal thought must establish the fundamental ideas about how to best employ land-based air power to achieve national aims, considering its strengths and weaknesses relative to basing. The AEF basing concept attempts to address these concerns. With this understanding of basing theory, the study next looks at expeditionary basing in practice.

Notes

[39]. This definition is a synthesis from Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms*; and Glenn H. Snyder and Paul Diesing, *Conflict Among Nations: Bargaining and Decision Making in International Crisis* (Princeton, N.J.: Princeton Unviersity Press, 1977), 6-9.

[40]. David R. Mets, *Land-Based Air Power in Third World Crisis* (Maxwell AFB, Ala: Air University Press), 3-4 and 139.

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[41]. Mets, 148.

[42]. Joint Publication 1-02.

[43]. This description is a synthesis of *Gulf War Air Power Survey*, vol. 2, *Operations and Effects and Effectiveness*, (Washington, D.C.: Government Printing Office (GPO), 1993), 21; and "General Air Force Principles," lecture Air Corps Tactical School (ACTS), 28 February 1935, Maxwell Field, Ala., 1.

[44]. ACTS lecture, 1.

[45]. Carl Von Clausewitz, *On War* (New York: Alfred A. Knopf, 1993), 472.

[46]. Mets, 140.

[47]. Jerold E. Brown, *Where Eagles Land: Planning and Development of U.S. Army Airfields, 1910-1941* (New York: Greenwood Press, 1990), 2.

[48]. Lt Col Price T. Bingham, USAF, "Operational Art and Aircraft Runway Requirements," *Airpower Journal* 3, no. # (Fall 1988): 52-69.

[49]. Ronald R. Hartzer, "The Overseas Basing System", *The CE Vision of the USAF Basing System in 2025* (Washington D.C.: GPO, 1996), 2.

[50]. Clausewitz, 484.

[51]. Brown, 2-4; and Hartzer, 2.

[52]. Brown, 2.

[53]. Brown, 2-3.

[54]. Bingham, 53.

[55]. Ibid.

[56]. Hartzer, 2.

[57]. Bingham, 54; and Brown, 3-4.

[58]. Bingham, 54; and John L. Cirafici, *Airhead Operations—Where AMC Delivers: The Linchpin of Rapid Force Projection* (Maxwell AFB, Ala: Air University Press, 1995), 2-8.

[59]. Bingham, 54.

[60]. Ibid, 55.

[61]. Ibid, 64-65.

[62]. This proposition has remained valid since the earliest air theorists, most notably Guilio Douhet in *Command of the Air*.

[63]. ACTS, 3.

[64]. Colonel Clifford R. Krieger, "Fighting the Air War: A Wing Commander's Perspective," *Airpower Journal* 2 (Summer 1997) :21-32.

[65]. Lt Col Charles M. Westenhoff, *Military Air Power: The CADRE Digest of Air Power Opinions and Thoughts* (Maxwell AFB, Ala: Air University Press, 1990), 41.

[66]. Bingham, 55.

[67]. Ibid, 56.

[68]. ACTS, 7.

[69]. Cirafici, 2.

[70]. Lt Gen Richard Hallin, deputy chief of staff, Installations and Logistics, US Air Force, address to Air Force Logistics Symposium, Wright-Patterson AFB, Ohio, 14 April 1997.

Chapter 4

Case Study: 1958 Lebanon Crisis

This chapter examines one of the USAF's most important experiences with the employment and basing of an air expeditionary force--the Lebanon Crisis of 1958. Of other possible case studies to choose from, the Lebanon Crisis is particularly useful, because of the parallels between it and the situations AEFs may face in terms of geography, politics and logistics. The purpose is to determine the implications the Lebanon experience offers for understanding the physical and doctrinal requirements for basing expeditionary air power. The chapter begins with an overview of the political context and military operations, then describes the role of basing in supporting CASF operations, focusing on its physical and doctrinal challenges.

The Lebanon Crisis

Communist expansionism in the Middle East's volatile political environment sparked the American military intervention in Lebanon. The crisis occurred at the Cold War's height with the United States intervening on behalf of the Chamille Chamoun government which communist forces were threatening through internal insurrection.[71] Western regional influence had sharply declined in the wake of the 1956 Suez Crisis, allowing the Soviets to fill the vacuum using economic and military aid.[72] The Soviet Union's growing influence led Congress to issue a joint resolution, known as the Eisenhower Doctrine, in March 1957 to reiterate US resolve to contain communism. This resolution authorized the President to use American forces in support of any Middle Eastern nation "requesting assistance against armed aggression from any country controlled by international communism."[73] Lebanon was just such a case.

Although US forces encountered difficulties during the initial stages of Operation BLUE BAT, the military intervention helped to stabilize the situation. On the July 14, 1958, an early morning military coup d'etat overthrew the pro-Western government of nearby Iraq—considered by many observers the region's most stable country.[74] The coup's surprise caused both the Lebanese and Jordanian governments to fear that this violent overthrow might spread; therefore, Chamoun urgently requested US military forces be sent within 48 hours.[75] President Eisenhower responded immediately by ordering a unilateral military intervention to "protect American lives and by their presence there to encourage the Lebanese Government in defense of Lebanese sovereignty and integrity."[76]

The request's urgency abbreviated the military's preparation time, resulting in operational and support problems during the employment phase.[77] Nevertheless, American forces responded quickly in the largest joint operation since the Korean War. Lebanon's strategic setting, as depicted in Figure 1, resulted in planners having US troops enter the country by airborne and amphibious assaults to establish airheads and beachheads for follow-on forces.[78]

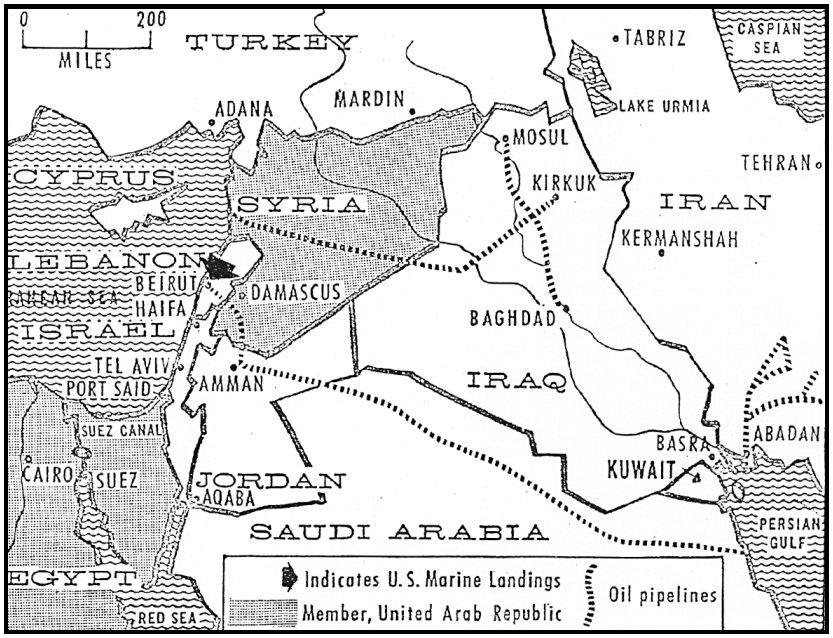

Figure 1. Lebanon Area of Responsibility

(From 17th Air Force History, January - December 1958, vol. 4, annex 1 "Support in Lebanon," AFHRA K573.01)

Fighter aircraft were to support these operations with offensive air cover and close air support by Composite Air Strike Force (CASF) Bravo operating from Incirlik Air Base near Adana, Turkey.[79] Within 24 hours of President Eisenhower's order, a battalion of Marines from the US Sixth Fleet landed near Beirut, Lebanon's capital, and soon occupied the international airport.[80] This landing took place with no air support, and left the Marines severely exposed to counterattack. Seven propeller-driven AD-6s and three FJ-3s arrived on scene shortly afterwards by staging through Cyprus from the aircraft carrier *Essex*—still one day away.[81] However, the arrival of additional Army and Air Force units on the second day quickly reduced tensions.

CASF-Bravo operations consisted of combat and support aircraft deploying from bases in the United States and Europe conducting a variety of missions in the region. Deploying units included the Nineteenth Air Force command element, lead by Major General Henry P. Viccellio, squadrons of F-100Ds and B-57s, and a composite reconnaissance squadron of RF-101s, RB-66s, and WB-66s. Troop-carrier C-130s and a communications package completed the task force. In addition to the TAC units, United States Air Forces in Europe (USAFE) sent F-86Ds and air rescue aircraft to support CASF-Bravo.[82] The F-100 fighters refueled three times in transit following a circuitous route around Greece (which had denied overflight rights), and arrived in Turkey eighteen hours later. Although the initial fighter elements arrived quickly, weather and aerial refueling problems delayed the remainder of the task force.[83] The entire force was in-place after four days, and began performing mass fly-bys over Lebanon; leaflet drops; Army troop airlift; photo, visual, and weather reconnaissance; and air defense.[84] Despite the delay of some units, the rapid buildup of forces deterred further fighting.

The presence of US forces helped quell the insurrection, and lead to a peaceful resolution of the crisis. American diplomatic efforts helped resolve the dispute by proposing an election in September, which resulted in Moslem control with a new Lebanese president.[85] US forces withdrew between mid-August and October 1958, after serving 100

days as a peacekeeping force.[86] This deployment demonstrated the US armed forces's capability to respond promptly in a crisis.

The Physical Challenges of Basing the CASF

The lack of available staging bases hindered the CASF deployment. The CASF concept of operations assumed a minimum time of alert to prepare for deployment, and for units previously scheduled for the operation, the brief warning time was not unreasonable.[87] However, it was woefully inadequate for substitute units selected at the last moment, resulting in last minute changes and troublesome suipply shortages—including maps, equipment, and planning books for foreign bases. [88] The abbreviated strategic warning also affected staging bases. For instance, aircraft soon overwhelmed Libya's Wheelus Air Base due to the denial of overflight and landing rights by Austria and Greece.[89] The chokepoint at Wheelus delayed deploying units up to three days, thus hampering beddown efforts in Turkey. Despite the initial elements arriving in Turkey nineteen hours after notification, these forces were ineffective until their maintenance and logistics capability arrived 36 hours later—almost two days after the Marines had entered Beirut.[90] These problems demonstrate how enroute basing availability can affect expeditionary operations, but these problems paled in comparison to those at Incirlik.

As America's only major air base in the Eastern Mediterranean, Incirlik's operability problems plagued operations as it quickly swelled with men, planes and equipment. The airfield, jointly built by the Turkish and American governments in 1954 as a bomber recovery base, consisted of a 10,000-foot concrete runway with large parking aprons, navigational aids, global communications, weather station, and a ramp lighting system.[91] Air Force leaders considered Incirlik one the best bases in USAFE.[92] However, the base had severe infrastructure problems, including inadequate utilities and facilities for even the small contingent of assigned personnel. There was minimal potable water available, and the fuel and electrical generation systems were very small due to the base's limited mission.[93] In addition, no administrative space, maintenance shops, or operations areas existed for the various units.[94] The congestion was due, in large part, to the 800 Air Force personnel and over 110 Air Force and Navy aircraft combined with 3,000 Army para-

troops awaiting deployment to Beirut.[95] Nineteenth Air Force's unit substitutions also contributed to the overtaxed facilities, by failing to bring much of the essential shop and housekeeping equipment expected.[96] The lack of housing was especially acute, with crews from the 363d Composite Reconnaissance Squadron and 429th Air Refueling Squadron sleeping on the ground until tents arrived two weeks later. Moreover, ground transportation and landline communications could not carry the load, nor could radar for ground control meet the needs of the 512th Fighter-Interceptor Squadron.[97] Despite these difficulties, General Viccellio concluded that the deployment's success validated the quick reaction concept, and provided the experience necessary to avoid many of these problems in the future.

The Doctrinal Challenges of Basing the CASF

The doctrinal challenges of operating from an austere base with minimal prepositioning and unresponsive organic engineering support complicated CASF operations at Incirlik. Despite the operation's success and the ultimate ability of Incirlik to support the operation, Air Force leaders recognized the need for more serious thought on basing the CASF. The Nineteenth Air Force's Final Report stated the operation had been of the "lightest requirement."[98] A more hostile situation would have magnified the problems and deficiencies that did arise. The final report concluded that the fundamental problem underlying the operational and logistical difficulties was the lack of bases in the theater. Incirlik alone could not have supported an expeditionary air force engaged in combat operations over Lebanon and other areas of the Middle East. TAC realized the lack of operational bases could present a serious problem in other areas of the world, and undertook serious consideration of overseas basing for emergency situations in the crisis's aftermath.[99] Further complicating base operability problems was the lack of prepositioned facility equipment. The base had been in 'stand-by' status for the previous three years, resulting in minimal stored equipment, such as generators, hand tools, and tents.[100] The SEAWEED assets available were in poor condition, and had to be cleaned and assembled before used. Preparing this equipment took an additional 24 hours after the units arrived.[101] The most significant pre-positioning problem was the absence of air transport-

able shelters for operations, maintenance and housing—because none existed in the Air Force inventory. CASF planners had anticipated deploying to robust theater bases, and had made no provision for this type of support. Operation BLUE BAT also caused the USAF leaders to re-examine the use of civilians or Army forces for basing support. The three week delay in installing a vitally needed water line by the Army, coupled with the inability of contract civilians to keep up with other facility demands did not inspire confidence in Air Force leaders.[102] As a result, the USAF began efforts afterward to gain control of aviation engineer battalions from the Army to create the organic engineering capability necessary for expeditionary operations. General Viccellio summarized the sentiments of other Air Force leaders stating,

> One of our greatest hopes is that evolution of the CASF will further modernize our forces. The first need is simplification and miniaturization of equipment to allow us to reduce our airlift requirements. One of our main claims to the limited-war mission is mobility. We find now that our airlift requirement is not excessive; but it is obvious that certain bulky items…can be replaced by more mobile substitutes. The advance preparation of suitable operating facilities will further increase our mobility. Our weapon systems, as good as they are, can stand improvement. We are looking forward to vertical take-off and landing or short take-off and landing aircraft and to armament racks and pylons that are truly universal.[103]

These views speak to the importance of looking at air power as a system—including its basing, and the operational considerations necessary for developing aircraft and support systems for an expeditionary force.

The nation's senior military leadership reached many of the same conclusions as Nineteenth Air Force regarding the physical and doctrinal challenges of basing. An analysis of the Lebanon crisis appeared in the Joint Chiefs of Staff (JCS) J-3 (Operations) report of April 16,1959 identifying three important lessons regarding basing:

1. Overflight and staging rights should be determined early for the benefit of planners and operators. In some cases it may be necessary to overfly without permission. Overflight problems with Austria, Switzerland, and Greece affected USAF operations.
2. Plans must consider more closely the possibility of congestion at forward airfields and provide for alternate air bases or phasing of forces. Because of the air base at Adana could not handle the peak loads, the arrival of the full USAF tactical air strength was delayed.

3. It should be recognized that the timely employment of US forces is dependent on strategically located base complexes and on adequate planning of logistic support. An additional base in Turkey may be necessary to support future planning. [104]

In addition, on February 9, 1959 the JCS approved for submission to the Chairman of the National Security Council (NSC) Planning Board a report listing five principle lessons of the Lebanon operation for NSC consideration. Of these five lessons, two dealt directly with basing in expeditionary operations:

1. The need for early determination of overflight and staging rights.
2. The need for adequate facilities to avoid congestion and delay during limited war operations that require rapid deployment of forces, equipment, and supplies by air.[105]

While these conclusions might seem obvious, they recognize two fundamental requirements for expeditionary air power—strategic access (availability) and adequate facilities (operability).

Summary

The 1958 Lebanon Crisis, while taking place at the height of the Cold War, resembles the kind of scenarios the Air Force is designing the AEF to meet. Although the US's joint response was immediate and successful in resolving the crisis, there were several problems in basing the CASF. The Air Force found it difficult to obtain staging and overflight rights, and to quickly provide adequate facilities for combat operations. Basing the CASF, according to senior Air Force leaders at the time, was a major cause of operational problems. The effects of basing were threefold. First, basing delayed the arrival of the entire CASF up to three days, leaving ground forces without adequate air cover. Second, the use of one base in theater to stage Army, Navy and Air Force units slowed air and ground operations. Third, a lack of adequate facilities and utilities hampered aircraft maintenance and personnel beddown. Although basing did not have disastrous effects in Operation BLUE BAT, Air Force leaders recognized that if combat had occurred, then Incirlik Air Base would have significantly hindered the CASF's ability to respond. This experience caused the USAF to re-examine the expeditionary basing doctrine to better address the physical and doctrinal challenges of basing. However, many of these same

challenges reappeared thirty years later when the Air Force returned to the Middle East during Operation DESERT SHIELD.

Notes

[71]. Colonel Albert P. Sights, Jr., "Lessons of Lebanon, A Study in Air Strategy," *Air University Review*, 16:28-43 (July-August: 1965), 28.

[72]. Roger J. Spiller, *"Not War But Like War": The American Intervention in Lebanon*, Leavenworth Papers, Number 3 (Fort Leavenworth, KS: Combat Studies Institute, January 1981), 6.

[73]. US Congress, The Middle East Resolution, Public Law 7, 85th Congress (House Joint Resolution 117, as Amended, Adopted by the Senate, March 5, 1957, and by the House of Representatives, March 7, 1957), Approved by the President, 9 March 1957.

[74]. "Iraq—Explosion Point in the Mideast," *U.S. News & World Report*, XLV:4 (July 25, 1958), 55.

[75]. Spiller, 17.

[76]. The President's Statement to the Nation, New York Times, July 16, 1958. HRA File K570.01, Volume 4, July-December 1958, 1.

[77]. Sights, 28-29; Major General Henry P. Viccellio, "The Composite Air Strike Force 1958," *Air University Quarterly Review*, 11:3-17 (Summer:1959), 6; and Robert D. Little and Wilhelmina Burch, "Air Operations in the Lebanon Crisis of 1958," USAF Historical Division Liaison Office, October 1962, 32. Little's and Burch's de-classified report revealed facts and lessons not mentioned by Viccellio and Sights..

[78]. Sights 28-29; and Spiller, 17.

[79]. Sights, 35.

[80]. Jack Shulimson, *Marines in Lebanon 1958*, (Washington, D.C.: Headquarters, United States Marine Corps, 1961), 7-10.

[81]. Sights, 37.

[82]. Viccellio, 4.

[83]. History of the 354th TFW, 1 Jul 1958 to 31 December 1958, AFHRA file K-WG-354-HI, Appendix I, 3. Appendix I is Colonel Francis S. Gabreski's personal account of Operation BLUE BAT as Wing Commander of the 354th TFW. Pages are not numbered.

[84]. Viccellio, 9.

[85]. Spiller, 44.

[86]. Viccellio, 10

[87]. Little and Burch, 71.

[88]. Originally, two squadrons of F-100s from Cannon AFB, NM were scheduled to deploy, but Generals Weyland and Viccellio decided to use the 354th TFW at Myrtle Beach, SC because an obstruction was blocking Cannon's runway. See Spiller, 32.

[89]. Little and Burch, 71.

[90]. Gabreski.

[91]. Harry R. Fletcher, *Air Force Bases Volume II, Air Bases Outside the United States of America*. (Washington, D.C.: Center for Air Force History, 1992), 49-51.

[92]. Little and Burch, 32.

[93]. Captain Stanley A. Kachel, "Lebanon 1958, CE Mobile Team Concept Reborn After Emergency," *Air Force Civil Engineer*, 3:6-7 (August 1962), 6.

Notes

[94]. Kachel, 6.
[95]. Little and Burch, 71.
[96]. Gabreski.
[97]. Little and Burch, 71.
[98]. Ibid, 73.
[99]. Ibid.
[100]. Ibid, 41.
[101]. Gabreski. SEAWEED assets consisted of foodstuffs, electrical equipment, and general purpose tents for deploying units.
[102]. Kachel, 6.
[103]. Viccellio, 16.
[104]. Little and Burch, Appendix Summary of Report by J-3 to Joint Chiefs of Staff on Lessons Learned from the Lebanon and Quemoy Operations with Particular Reference to Lebanon, 90.
[105]. Ibid, 70.

Chapter 5

Case Study: The Gulf War

This chapter aims to examine the Air Force's experience in basing expeditionary forces during a major regional conflict, by studying the service's largest expeditionary operation since World War II--the 1991 Gulf War. The Gulf War is particulary useful because it is recent, large, and similar in many aspects to what the AEF may face in terms of political and geographic setting. The study focuses on the challenges of basing air forces with the aim of understanding the physical and doctrinal requirements for expeditionary basing using the Gulf War experience.

The Physical Challenges of Basing During the Gulf War

The physical challenges were securing access to bases in seven nations, with six of whom the United States had no formal military alliances; and building or improving upon 23 airfields in harsh climate conditions. These airfields served as logistics depots, transportation hubs, and beddown sites. After the Gulf War, national leaders stressed the importance of having air bases readily available for use as contributing significantly toward the Coalition's success. However, the Gulf War Air Power Survey (GWAPS) concluded that there were many difficulties in basing.[106] The following discussion looks into how the challenges of availability and operability shaped air power's use.

The hurdles in securing basing were developing a theater network of installations, where hardly none existed before, while balancing operational and diplomatic requirements. The beginnings of a theater network existed before August 1990 with bases in Egypt, Oman, and Saudi Arabia that had been built or improved upon by the Air Force's Foreign Military Sales construction program.[107] The Air Force and Army Corps of Engi-

neers designed and constructed these installations to US standards, "over-sizing" the facilities to accommodate additional aircraft in a crisis. However, the selection and development of an expanded basing system for DESERT SHIELD required planners to balance the deploying force's operational requirements with the respective government's political sensitivities.[108]

Ultimate layout and utilization of the theater basing plan, while based in part on operational considerations, was largely the product of diplomatic considerations. Operational planning considered a variety of basing options, based on considerations of threat, existing infrastructure, regional climate, and available logistics. Unfortunately, US Central Command's Operations Plan 1002 (in draft at the time) did not specify where American aircraft would deploy—because no one was sure which Arab airfields would be available, or what aircraft would deploy.[109] Furthermore, even after Saudi Arabia and other Gulf nations requested US assistance, planners had to negotiate with both national and local government leaders to obtain permission to use some installations.[110] These negotiations often deflected the beddown plans of the deploying 9th Air Force, the main component of USCENTAF, and of other air elements moving into the region.[111] For example, Lieutenant General Charles Horner's initial plan, as Ninth Air Force Commander, was to deploy F-15E and F-111 fighter-bombers together with EF-111 electronic jamming aircraft to the International Airport at Seeb, Oman. However, the Omani government did not want American fighter aircraft based at its international airport. Instead, the F-111s went to Taif, Saudi Arabia and F-15Es to an remote base at Thurmait, Oman before eventually moving to Al Kharj, near Riyadh. Similarly, A-10s scheduled for Riyadh's King Khalid International Airport, instead deployed to King Fahd airfield outside Dhahran, under construction at the time. Both Seeb and King Khalid airports received KC-135 tankers. Even though diplomatic maneuvering complicated basing decisions, inaccurate information also frustrated planning efforts.

Planners had to make many basing decisions with inaccurate information on the region's airfields. During the hectic days of August 1990, planners lacked vital information concerning many of the locations depicted in Figure 2.

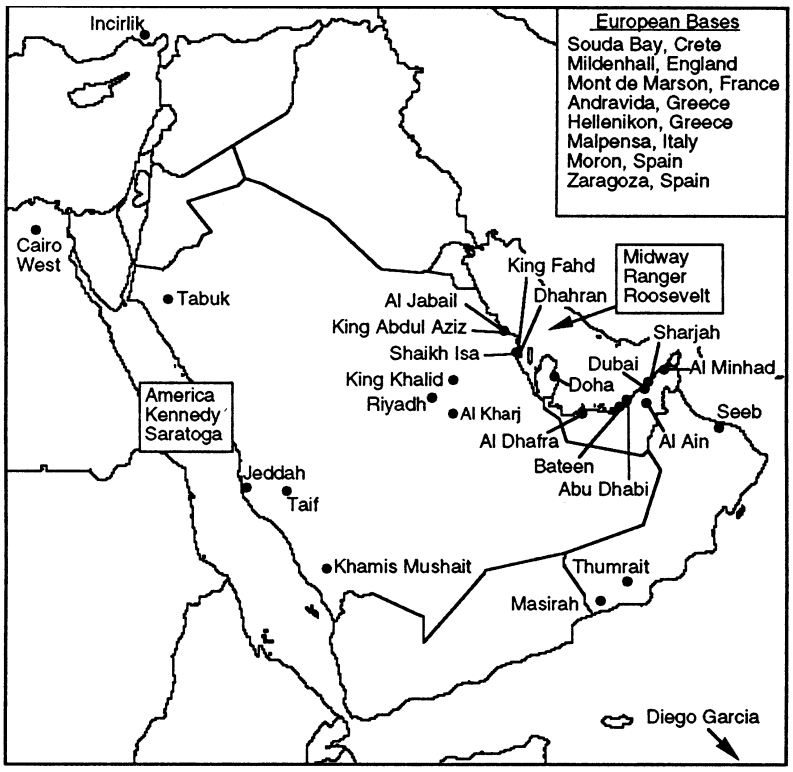

Figure 2. Major Air Bases Used
(From Thomas A. Keaney and Eliot A. Cohen, Revolution in Warfare? Air Power in the Persian Gulf (Annapolis, Md: Naval Institute Press, 1995), 147.

The most current information available was from a 1985 Defense Mapping Agency document, outdated by the many construction projects completed since that time.[112] Accurate information became available only when Air Force engineers began conducting site surveys two weeks into the operation.[113] Without this information, planners often guessed about requirements at several levels of command—resulting in the wrong people and equipment at the wrong place at the wrong time.

Despite the problems in securing access, the overall effort was successful in bedding down Coalition air forces. The problems with diplomatic haranguing and inaccurate planning information resulted in some units changing their final destination while en route, thus becoming separated from their logistical support.[114] Nevertheless, Dr. Ronald B. Hartzer, civil engineering contributor to the Gulf War Air Power Survey, concluded that, "The availability, reliability, and capability of the network of bases to support the application of air power were keys to the successful prosecution of the air war during Op-

eration DESERT STORM."[115] By mid-September, over seven hundred airplanes and thirty-one thousand people had crowded onto 23 Arab airfields—overwhelming most expectations.[116] This experience reinforced the importance of accurate planning information, and showed that diplomatic considerations frequently will have an overriding influence on base planning efforts.

With the operating locations selected, planners still faced the daunting task of turning many remote, austere airfields into fully operational air bases. Although some bases were very modern military installations, many locations were incapable of supporting combat operations due to the lack of munition storage areas, operations facilities, and maintenance workshops.[117] The first challenge of engineers was bedding down the people and planes already in-place. Inadequate logistical support, poor utilities, and harsh conditions greatly complicated this daunting task.

Effective beddown was possible only when the people and equipment came together in an orchestrated manner. The planning effort early on, based upon inaccurate information, resulted in just the opposite. According to a long standing concept of operations, the equipment necessary to transform existing airfields into operational bases was to move from prepositioned stores at five land-based sites and aboard three ships to these operating locations.[118] RED HORSE and Prime BEEF teams, the Air Force's organic engineering capability, were to move to these sites and construct the necessary facilities for operational forces.[119] However, this plan faltered for two main reasons. First, despite suitable runways and parking areas, the secondary operability considerations of adequate utilities, work shops and housing were not. Air-deployable HARVEST FALCON assets were the first choice for overcoming these shortfalls. However, improperly marked shipping containers delayed the transportation of this equipment, and the organizations responsible for moving these assets did so without the advice of engineering planners.[120] When the equipment did arrive, critical items were often missing—further delaying beddown efforts.[121] The second reason for Air Force plans faltering was the National Command Authority's decision to send combat units ahead of support organizations to deter Iraqi aggression. This decision basically scrapped CENTCOM's plans resulting in operational units being unable to sustain combat operations.[122] Major General Lester

Brown's anecdote, as the acting Ninth Air Force Commander for General Horner, illustrated the problems faced:

> The deployment was so rapid that transportation of logistic support items, bare base support equipment and communications gear lagged far behind. The result was that, even though they were on the ground in Saudi Arabia, [the] fighter units [in the initial deployment package] could not really function properly because they did not have the necessary support. For example, one squadron from the 363 TFW [Tactical Fighter Wing] flew sixteen hours to beddown site at Al Dafhra—which was a bare base. When the aircrews and planes arrived, they found that there were only thirty SAC people on base to meet them.…The aircrews had to disarm the missiles they had ferried over themselves. Even as late as today [13 August 1990] the 363rd at Al Dafhra has only enough food, water, and munitions to sustain it for twenty-four hours!…It will take at least until…18-19 August before the necessary Harvest Eagle and other support equipment and supplies to maintain these units will arrive.[123]

This experience suggests that operational doctrine should reconsider the fundamental assumptions about projecting air power in a crisis, and that a stronger link is necessary between logistics and operational planners.[124]

To meet the challenges of survivability and defense, 9th Air Force personnel focused on protecting forces against terrorism and aerial attack using resource dispersal, facility hardening, and perimeter fortification. Dispersal actions increased the demand for aircraft parking areas, often exceeding the capabilities of the existing infrastructure.[125] RED HORSE teams constructed concrete aprons to meet this demand. Within parking areas, civil engineers constructed revetments to isolating aircraft from one another, thereby preventing the chance of secondary explosions in case of attack. Earth berms and sandbagging were the primary means for facility hardening. In limited cases, key command and control centers operated from underground bunkers protected against chemical attack.[126] These facilities allowed senior leaders and their staffs to work while being unencumbered by chemical warfare gear. The threat of terrorism attack, although never significant during the war, was a major consideration beforehand. Counterterrorism efforts emphasized expanding and securing installation perimeters, creating obstacles at base entrances, and constructing entrapment areas at key facilities.

The implications of this experience in dealing with basing's physical challenges are twofold: diplomatic considerations often play a more important role than operations fac-

tors, and the proper timing of people, planes and equipment is vital to operational success. Air power's speed and range enable it to respond promptly in a crisis—if a base is available and operable. Responsiveness requires having the right people and equipment at the right place at the right time—while satisfying diplomatic concerns. Timing between these elements continues to present doctrinal challenges that this study explores next.

The Doctrinal Challenges of Basing During the Gulf War

The doctrinal challenges of basing in the Gulf War centered on balancing responsiveness with diplomacy, and effectiveness with efficiency. The first challenge involved the choice of robust or bare bases, and required balancing the desire's of member states with proximity to resources and the threat. The second challenge required balancing the deployment of combat and support units. Again, the threat and diplomatic considerations caused the Air Force to meet political necessity at the sacrifice of operational requirements.

Another challenge involved reconciling the tension between prepositioning versus deploying assets to a theater. While the US forces had abundant resources to drawn upon, this 'wealth' hid some doctrinal problems regarding the tension between effectiveness and efficiency. Specifically, should the Air Force store preposition items at central depots or dispersed locations, and who should control the flow of those items to their final destination—the user or supplier? The central concern in each dilemma remains the same—the time available for logistical support to meet operational needs.

The challenge of using robust or bare bases required balancing the desire's of Coalition member states to have US forces on their soil with General Horner's plan to place Air Force units on mission-ready bases near logistic depots or Kuwait. The balance between these two competing factors did not remain static, but shifted as the Coalition's strategic focus changed. As explained before, the United States had helped develop modern bases in the region. In August 1990, General Horner's plan was to send the first combat units to these locations. However, other Coalition members insisted on having US troops on their soil—but out of sight. These requirements resulted in some combat

units being stationed at bare bases in Oman, Qatar and the United Arab Emirates.[127] These decisions reflected the importance of building Coalition support to deter Iraqi aggression. While the strategic results were positive, the lack of basing and combat support degraded the combat capability of some units.

The balance between these two competing factors changed with the decision to go on the offensive. In November 1990 President George Bush ordered additional forces to the region to create an offensive capability within the Coalition.[128] This decision meant additional aircraft and personnel were necessary at already straining air bases. Hence, General Horner directed the construction of increased aircraft parking at existing locations, and the opening of two new bases to support combat operations.[129] RED HORSE units, capable of heavy construction, tackled the task of constructing additional revetments, hardstands, parking ramps, and taxiways in Saudi Arabia, Bahrain and the United Arab Emirates. Prime BEEF and RED HORSE units set up two additional bare bases—one near Al Kharj (south of Riyadh), and the other at King Khalid Military City (KKMC) near the Iraqi border. Within two months, Al Kharj grew from only a runway, parking area and water well to over 200 aircraft and 5,000 personnel.[130] KKMC, initially planned as a small 800-person base, expanded to nearly 2,000 people by mid-January to give a quick-turn-around capability and recover damaged aircraft. The construction of Al Kharj and KKMC allowed units stationed along the Persian Gulf to move forward, reducing in-transit time and improving responsiveness. Thus, the balance between operational requirements and diplomatic desires shifted in response to the strategic objectives changing.

The second challenge required balancing the deployment of combat and support units. The threat of Iraqi invasion into Saudi Arabia and the desire of Gulf leaders for a show of force prompted the National Command Authority to send combat units before support units. This decision degraded air power's punch during the first weeks because Air Force planners assumed substantial warning would exist to allow the sequential build-up of forces to conduct sustained combat operations. Despite the existence of modern bases, prepositioned equipment, and almost limitless petroleum supply, the lack of support forces greatly hindered air operations. Aircrews and maintainers, accustomed to finding facilities and logistical support in place, had to fend for themselves in securing utilities,

living and work spaces. Days afterward, support units began to arrive, starting a "catch-up" effort that lasted several weeks.

The initial shortfall in combat capability was also a function of tradeoffs between peacetime efficiency and wartime effectiveness. While military leaders hailed the importance of having large quantities of equipment in theater, either in large depots or aboard ships, this equipment was all to often not where it needed to be when necessary. Notwithstanding that prepositioning reduced airlift requirements by, perhaps, an order of magnitude, the centralization of those assets and the disconnects between logistic systems and operational planners greatly hindered combat effectiveness. The Air Force prepositioned HARVEST FALCON sets in large depots in Oman to ease peacetime maintenance and safekeeping. Admittedly, no one knew for sure where this equipment might be needed or when. In addition, many future Coalition members would not even entertain the idea of storing such equipment in their country before the crisis. Nonetheless, the Air Force's experience shows that while prepositioning is important to operational agility; it can hinder responsiveness if too centralized in a theater. If political constraints require centralized storage, then operational planners and users need to have reliable visibility of where those assets are, and a voice in their shipment priority.

The implications of the doctrinal challenges experienced in the Gulf War are threefold: 1) diplomatic considerations affect doctrinal decisions about the right place to operate from; 2) deployment plans should balance the flow of combat and support forces, ensuring the right people are in the right place at the right time; and 3) prepositioning plans should balance wartime effectiveness with peacetime efficiency to ensure vital equipment is in the right place at the right time.

Summary

The Gulf War experience demonstrated that though the Air Force's basing capability had improved since 1958, the physical and doctrinal challenges remained the same. The implications regarding basing's physical challenges are twofold: diplomatic considerations continue to play a significant role in shaping basing decisions; and the timing of people, planes and equipment is vital to operational success. The doctrinal implications

are similar: diplomacy will affect doctrinal decisions about basing and responsiveness; air power's speed and range enable it to respond promptly in a crisis—if properly support by people, equipment, and facilities; and prepositioning requires a balance between efficiency and effectiveness to ensure logistical support is responsive to operational requirements. Timing is the common element to these debates, and continues to present the Air Force with doctrinal challenges regarding basing that the AEF concept ought to address.

Notes

[106]. Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, Md: Naval Institute Press, 1995), 146.

[107]. Lt Col Harry W. Glaze and Lt Col Larry G. Garrison, "The Saudi Arabian Construction Program," *Engineering and Services Quarterly*, May 1980, 20-23. The author also has experience with these programs.

[108]. Keaney and Cohen, 138-41.

[109]. *Gulf War Air Power Survey* (*GWAPS*), vol. 2, *Operations* (Washington, D.C.: GPO, 1993), 17; and vol. 3, *Logistics and Support* (Washington, D.C.: GPO, 1993), 4.

[110]. William T. Y'Blood, *The Eagle and the Scorpion: The USAF and the DESERT SHIELD First-Phase Deployment, 7 Aug - 8 Nov 1990* (U) (Washington, D.C.: Center for Air Force History, 1992), 37. (Secret) Information extracted is unclassified.

[111]. *GWAPS*, vol. 2, 18-19.

[112]. *GWAPS*, vol. 3, 4.

[113]. Ronald B. Hartzer, "Validating Air Force Civil Engineering Combat Support Doctrine in the Gulf War," *Air Power Journal* 8 (Summer 1994) :62-71.

[114]. Y'Blood, 51-52.

[115]. Hartzer, "Validating Air Force Civil Engineering Combat Support Doctrine in the Gulf War," 63.

[116]. Lieutenant General Charles A. Horner, "DESERT SHIELD/DESERT STORM: An Overview," *Air Power History*, (Fall 1991): 5-9.

[117]. Keaney and Cohen, 146.

[118]. William Suit, "The Logistics of Air Power Projection," *Air Power History*, (Fall 1991) 9-20.

[119]. Ronald B. Hartzer, "Engineering and Services in Operation DESERT SHIELD," *Air Power History*, (Fall 1991): 20-27.

[120]. RAND, *Assessment of DESERT SHIELD Deployment* (Santa Monica, CA: RAND, 10 Oct 1991), 57-58.

[121]. SSgt. Detroit Whiteside, "Others Promise, They Produce," *E&S Update*, November 1990, 1.

[122]. Horner, 6.

[123]. *GWAPS*, vol. 2, 20.

[124]. Hartzer, "Validating Air Force Civil Engineering Combat Support Doctrine in the Gulf War," 69.

[125]. Keaney and Cohen, 149.

[126]. This statement is based upon the author's personal experience.

Notes

[127]. Keaney and Cohen, 138-141.
[128]. Horner, 6.
[129]. Ibid.
[130]. Ronald B. Hartzer, “Engineering and Services in Operation DESERT SHIELD,” 25.

Chapter 6

Conclusion

> *"At the very heart of warfare lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilization of men, equipment, and tactics. It is the building material for strategy. It is fundamental to sound judgment."*
>
> ------ *General Curtis E. LeMay*

This paper's thrust has been to examine the best means of basing the Air Expeditionary Force by addressing the question: *Whether the basing of expeditionary forces shold be a sequential or parallel process?* Four subordinate questions have provided a framework for answering this important question.

First, *what is the Air Expeditionary Force, and how does it compare to previous efforts, such as the Composite Air Strike Force?* The Air Expeditionary Force is a cost-effective response to crises by marrying the economies of US basing with practiced rapid response to produce an operational punch comparable to theater-based units. Even though the AEF and CASF are similar regarding their purpose, composition and limitations, these ideas differ significantly regarding physical and doctrinal challenges of basing. The CASF planned on deploying to existing theater bases using Army support because the Air Force had minimal organic basing capability. In contrast, the AEF plans on deploying to moderately robust locations at host nation air bases using Air Force organic engineering and bare base capabilities. Furthermore, AEFs expect to conduct operations while bedding down forces—a major shift in how the Air Force thinks about combat support and basing.

Second, *what is the theory for basing air power in expeditionary operations?* Expeditionary basing typically occurs in the context of crisis, hence operational strategists must resolve basing's physical and doctrinal challenges quickly for air power to be responsive. The Air Force created the AEF primarily as an instrument of military power for crisis situations. A crisis being a time-compressed sequence of events rife with uncertainty. In these situations, the process for projecting air power consists of a few, highly interdependent elements: establishing national objectives, organizing forces, establishing basing and logistical support, planning and executing operations. The most important facet of this process is that it occurs concurrently due to the rapid succession of events—significantly increasing the complexity. Therefore, basing strategy and plans must resolve the physical challenges of availability and operability, while balancing doctrinal challenges that pit effectiveness against efficiency. Air strategy should draw the of people, equipment, and facilities together into a meaningful whole at the proper time and place.

Third, *what has been the Air Force's experience in basing expeditionary forces?* The USAF's expeditionary basing experience, while successful, has been fraught with difficulties as illustrated in the 1958 Lebanon Crisis and 1991 Gulf War. Although these deployments occurred in vastly different political contexts, they show that basing's physical and doctrinal challenges are problematic. In the Lebanon Crisis there were several problems in deploying the CASF. One primary cause was the difficulty in securing staging and overflight rights, and quickly providing adequate facilities. Basing, according to senior Air Force leaders at the time, was a major cause of operational problems. These difficulties affected air operations in two ways. First, the lack of basing delayed the arrival of the entire CASF up to three days, leaving ground forces with insufficient air cover. Second, inadequate facilities and utilities at Incirlik Air Base hampered operations. Although basing did not have disastrous effects in Operation BLUE BAT, Air Force leaders recognized that if combat had occurred, these deficiencies would have significantly limited air power's ability to respond. Similar difficulties reappeared thirty years later when the Air Force returned to the Middle East.

The Gulf War, as a major regional conflict, demonstrated that though the Air Force's basing capability had improved since 1958, the physical and doctrinal difficulties re-

mained the same. Certainly, many of these difficulties were due to the fog and friction of war; however, the repeated occurrence of combat units arriving with insufficient support and facilities indicates more fundamental causes exist. Arguably, these causes are the result of diplomatic considerations outweighing operational factors in basing air force, and inaccurate planning assumptions that rely upon several days of "unambiguous warning" for the sequential buildup of basing and logistical support. During the initial phase of the crisis, support units did not arrive until several days after combat units were in theater flying combat-type sorties (combat air patrols, testing Iraqi air defenses).. Again, proper timing between people, equipment, and facilities is necessary for air power to be responsive, and continues to present the Air Force with doctrinal challenges regarding basing.

Fourth, *how does current doctrine compare to this experience and theory—where do they agree and disagree, and why?* Although Air Force doctrine adequately addresses basing's physical and doctrinal challenges, it does not deal with the complexities of basing expeditionary air power in a crisis. Air Force Manual 1-1 recognizes basing's role in air power, summarized it states that, "Air and launch base operability and defense must be major considerations in campaign planning and execution."[131] Air Force Doctrine Document (AFDD) 42, Civil Engineer, further expands upon these core beliefs. AFDD 42 speaks to the importance of securing the basing necessary to carry out national objectives, and how the selection and establishment of a network of theater air bases must support the air component commander's air campaign.[132] The air commander's exercise of operational art involves choosing when and where to operate, creating conditions that give forces the best chance of winning and exploiting opportunities; hence, the network of bases is a vital element of operational strategy.[133] In addition, AFDD 42 acknowledges the importance of operability "through a balance of mission compatibility, redundancy, mobility, flexibility, survivability and defense."[134] The doctrine also discusses the challenges of bare and robust bases, organic and contract labor, and prepositioning.[135] However, civil engineering doctrine contradicts experience in that it says support forces should *precede* aircraft to a base and prepare for follow-on forces.[136] By preceding combat units, support units can construct living and working facilities to sustain operations.

Although sending support units before operational ones may be preferable, sufficient strategic warning is not a given. Projecting air power in a crisis more often requires that support units deploy after or concurrently with combat forces. Admittedly, some preparation is always necessary for land-based air power, especially in the absence of the logistics infrastructure found in Lebanon or the Gulf. Therefore, given the AEF's basing concept, service doctrine needs to better prepare support forces for deployment to locations where people and planes are already in place.

Changes in basing doctrine need to re-address the USAF's fundamental assumptions about force employment, and prepare for far more challenging situations. Changing doctrine is no easy task. As I. B. Holley contends, it requires deep introspection and a probing look at the fundamental assumptions supporting sanctioned beliefs.[137] Moreover, Michael Howard states no doctrine is perfect—for when combat occurs it eventually reveals doctrinal errors. The peacetime military professional's responsibility is to ensure doctrine is "not too far wrong," adaptable to correction faster than the adversary's.[138] If the military professional's peacetime responsibility is to ensure that doctrine is "not too far wrong," then I argue that basing and combat support doctrines are astray. The Air Force must change the fundamental assumptions underlying its beliefs of basing to recognize that power projection is largely a parallel process, and that base development, as a fundamental element of air power, will have to occur concurrently. Combat and support forces must not only "be joined at the hip" in peacetime, they must deploy and employ together to initiate and sustain high-tempo operations. Perhaps Lieutenant General Michael A. Nelson, former Headquarters Air Force Deputy Chief of Staff for Plans and Operations, best summarized the challenges faced in projecting air power in the 21st century:

> We cannot predict where the next DESERT SHIELD will occur. It could easily be in a place where we have no troops and no infrastructure—no bases or support systems in place. We will have to take with us everything that we need, including shelter, maintenance facilities, hospitals, and food and water.[139]

Implications

Changing fundamental assumptions about basing air power has significant implications on the way the service organizes, trains, and equips. Currently, the Air Force or-

ganizes its combat forces mostly along functional lines—for many valid reasons. Nevertheless, assuming that support forces need to deploy concurrently with combat units, leads to the realization that AEFs might ought to deploy as cross-functional units to improve responsiveness. The focus of effort and operational objectives throughout each stage of the process (securing the base, initial planning and host nation negotiations, force reception and beddown) should guide the development of combat units. While this idea certainly has disadvantages regarding peacetime management, overall mission effectiveness would improve by having all the right players at the right place and time. As an example, the 366th Wing at Mountain Home has developed deployable teams in this manner and demonstrated the idea's merits.[140]

If the AEF must prepare to fight immediately upon arrival in a theater, then the Air Force needs to also reconsider how it trains its personnel. Deploying units into an operation that requires beddown while fighting will require assigned personnel to have a greater knowledge of field craft and beddown skills. In DESERT SHIELD, air-deployable shelters often sat unpacked for days because no one knew how to erect them.[141] General field skills in bedding down, field sanitation, and self-protection should begin in basic training. Additional skills in constructing field facilities and systems, such as maintenance hangars and operations areas, should be career field specific. Cross-training in these areas will provide AEF commanders greater flexibility in accomplishing mission-essential tasks.

Another implication deals with rethinking the design of Air Force weapon systems. If runways and parking aprons are the primary consideration, what will the Air Force do when faced with a situation where none exist. Given General Nelson's comment, the Air Force needs to look again at having part of the tactical air forces having a vertical takeoff and landing capability. Air Force leaders in the 1950s recognized the importance of a vertical takeoff and landing aircraft for the viability of the CASF.[142] A small portion of the force, so equipped, would provide tremendous operational flexibility with regard to basing—especially in the early stages of the crisis.[143]

The greatest implication of this change in assumptions is that success in expeditionary operations, above all else, requires a different mind set. Changing an institution's way of

thinking is perhaps the most difficult challenge any leader faces because it is often difficult to change a person's thinking—much less a whole institution's. Only consistent leadership over time supported with realistic training, backed up by the necessary tools and equipment can achieve this vital goal.

Notes

[131]. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 2, March 1992, #.

[132]. Air Force Doctrine Document (AFDD) 42, *Civil Engineer,* 28 December 1994, 3.

[133]. AFDD 42, 3.

[134]. AFDD 42, 3.-4. Air power is more than the sum of airplanes, missiles and munitions. Effective application of airpower requires the coordination between the weapon system, supporting systems, and basing systems. The synergistic use of all three determines Air Force capability.

[135]. AFDD 42, 6-7 and 9.

[136]. AFDD 42, 5.

[137]. I. B. Holley, Jr., "The Doctrinal Process," *Military Review*, April 1979, 2-13.

[138]. Michael Howard, "Military Science in an Age of Peace," Chesney Memorial Gold Medal Lecture, 3 October 1973, reprinted in *Journal of the Royal United Services Institute for Defence Studies* 119 (March 1974): 3-11.

[139]. Lt Gen Michael A. Nelson, "Aerospace Forces and Power Projection," in *The Future of Air Power In the Aftermath of the Gulf War*, ed. Richard H. Schultz, Jr. et al (Maxwell AFB, Ala.: Air University Press, 1992), 123.

[140]. Headquarters Air Combat Command, *Operational Readiness Inspection Report*, 366 Wing, Mountain Home AFB, Idaho, 17-31 July 1995, 2.

[141]. Hartzer, "Validating Air Force Civil Engineering Combat Support Doctrine in the Gulf War," 69.31.

[142]. Viccellio, "The Composite Air Strike Force 1958," 17.

[143]. Bingham, "Operational Art and Runway Requirements", 66-67.

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